earthquakes

safety tips
for earthquakes

federal emergency
management agency

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What to expect in an earthquake

During an earthquake, the "solid" earth moves like the deck of a ship. The actual movement of the ground, however, is seldom the direct cause of death or injury. Most casualties result from falling objects and debris because the shocks can shake, damage, or demolish buildings. Earthquakes may also trigger landslides, cause fires, and generate huge ocean waves called "tsunamis."

Earthquake injuries

Injuries are commonly caused by:

- Building collapse or damage, such as toppling chimneys, falling brick from wall facings and roof parapets, collapsing walls, falling ceiling plaster, light fixtures, and pictures.
- Flying glass from broken windows. (This danger may be greater from windows in high-rise structures.)
- Overturned bookcases, fixtures, and other furniture and appliances.
- Fires from broken chimneys, broken gaslines, and similar causes. The danger may be aggravated by a lack of water caused by broken mains.
- Fallen powerlines.
- Drastic human actions resulting from fear.

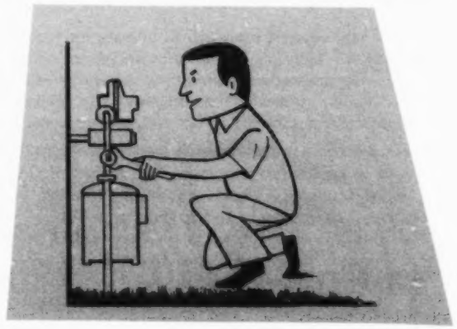
What can you do?

There are many actions that you can take to reduce the dangers from earthquakes to yourself, your family, and others.

Before an earthquake occurs

Personal Preparedness Actions

- Check for potential fire risks. Defective electrical wiring and leaky gas connections are very dangerous in the event of an earthquake. Bolt down or provide other strong support for water heaters and gas appliances. Use flexible connections wherever possible.
- Know where and how to shut off electricity, gas and water at main switches and valves. Check with your local utilities office for instructions.



- Be sure you have a flashlight and a battery powered radio on hand in case power is cut off.
- Place large and heavy objects on lower shelves. Securely fasten shelves to walls. Brace or anchor high or topheavy objects.
- Bottled goods, glass, china and other breakables should likewise not be stored in high places or left where they can freely slide on shelves.
- Overhead lighting fixtures such as chandeliers should be made fast. A little wiring or anchoring will usually take care of these risks.
- Deep plaster cracks should be investigated. Such cracks especially on ceilings, could result in large pieces of heavy plaster falling and causing injury.

The earthquake potential

Earthquakes in the United States occur most frequently west of the Rocky Mountains. But there are 39 states with a cumulative population of more than 70 million which are potential targets for earthquakes.

During an earthquake

If you are outdoors; stay outdoors; if indoors, stay indoors. In earthquakes, most injuries occur as people are entering or leaving buildings.

If indoors, take cover under a heavy desk, table, bench, or in doorways, halls, or against inside walls. Stay away from glass. Don't use candles, matches, or other open flames either during or after the tremor because of possible gas leaks. Douse all fires.

If in a high-rise building, get under a desk or similar heavy furniture. Do not dash for exits, since stairways may be broken and jammed with people. Never use elevators since power may fail.

If in a crowded store, do not rush for a doorway since hundreds may have the same idea. If you must leave the building, choose your exit as carefully as possible.

If outdoors, move away from buildings and utility wires. The greatest danger from falling debris is just outside doorways and close to outer walls. Once in the open, stay there until the shaking stops.

If in a moving car, stop as quickly as safety permits, but stay in the vehicle. A car may jiggle violently on its springs during an earthquake, but it is a good place to stay until the shaking stops. When you drive on,

watch for hazards created by the earthquake, such as fallen or falling objects, downed electric wires, or broken or undermined roadways.

After an earthquake

- Be prepared for additional earthquake shocks called "aftershocks." Although most of these are smaller than the main shock, some may be large enough to cause additional damage.

- Check for injuries. Do not attempt to move seriously injured persons unless they are in immediate danger of further injury.

- Turn on your radio or television to get the latest emergency bulletins and instructions from local authorities.

- Check utilities. Earth movement may have broken gas, electrical and water lines. If you smell gas, open windows and shut off the main gas valve. Then leave the building and report gas leakage to authorities. Do *not* re-enter the building until a utility official says it is safe. If electrical wiring is shorting out, shut off current at the main meter box. If water pipes are damaged, shut off the supply at the main valve. Emergency water may be obtained from such sources as hot water tanks, toilet tanks, and melted ice cubes.

- Check to see that sewage lines are intact before permitting continued flushing of toilets.

- Check chimneys for cracks and damage. Unnoticed damage could lead to a fire. The initial check should be made from a distance. Approach chimneys with great caution.

- Do not touch downed powerlines or objects touched by the downed lines.

- Immediately clean up spilled medicines, drugs, and other potentially harmful materials.

- Do not eat or drink anything from open containers near shattered glass.

- If power is off, check your freezer and plan meals to use foods which will spoil quickly.

- Stay out of severely damaged buildings. Aftershocks can shake them down.

An earthquake's worst killer may come from the sea

Tsunamis are the so-called "tidal waves" generated by some earthquakes. A tsunami, however, is not a single wave, but a series of waves. When you hear a tsunami warning, you must assume a dangerous wave is on its way.

If you live along the coast, an earthquake in your area is a natural tsunami warning. Do not stay in low-lying coastal areas after a local earthquake. Do not return to such areas until local authorities tell you that the danger of a tsunami has passed.

Approaching tsunamis are sometimes heralded by a noticeable rise or fall of coastal water. Never go down to the beach to watch for a tsunami. When you can see the wave you are too close to escape it.

Personal conduct in an earthquake disaster

Remain calm. Think through the consequences of any action you take. Don't use your telephone except for genuine emergency calls. Don't spread rumors; they often do great harm after disasters.

Never go sightseeing. Your presence could hamper emergency relief efforts and you could be putting yourself in personal danger. Cooperate fully with public safety officials. Respond to requests for volunteer assistance from police, firefighting, civil defense and relief organizations, but do not go into damaged areas unless your assistance has been requested.

Civic activities

In those areas where damaging earthquakes can be expected, support building codes and practices with up-to-date seismic provisions, plus strict inspection and firm enforcement. (Modern engineering can provide structures which resist earthquake damage many times better than older practices. If no such regulations or code provisions exist in your community, you should support their enactment.)

Support land-use practices that discourage development in areas near faults and prone to landslides or soil failure.

Support school, hospital, and other vital facility building programs which provide for the strengthening of weak buildings or their replacement with earthquake-resistant structures on ground reasonably safe from failure during a strong earthquake.

Support community efforts to replace or upgrade weak buildings and to insure that loose objects on building exteriors (for example, cornices) are either removed or securely fastened.

Organize and support programs to prepare for future earthquakes. (Schools and civic organizations could provide a very beneficial community service by holding earthquake drills and training sessions to prepare citizens to react properly when earthquakes occur.)

Make an earthquake emergency the subject of a family discussion. Share your plans and emergency information with friends and relatives. Earthquake preparedness and what you do during and immediately after the tremor may make a life and death difference.

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